

## CLAIMS

What is claimed is:

1. A cartridge unit for use in a data processing system, comprising:
  - a circuit board having a controller;
  - a housing containing the circuit board;
  - a first connector coupled to the circuit board for connecting to the data processing system;
  - a second connector coupled to the circuit board;
  - a grip pivotally mounted to the housing; and
  - an auxiliary unit including:
    - an auxiliary circuit board having an auxiliary memory device;
    - an auxiliary connector, coupled to the auxiliary circuit board, for detachably connecting to the second connector;
    - an auxiliary housing containing the auxiliary circuit board and having a guide for guiding the auxiliary connector to connect to the second connector via a predetermined path; and
    - an auxiliary grip pivotally mounted to the auxiliary housing;
  - wherein the cartridge unit is configured to receive a variety of auxiliary units, and when the auxiliary unit connects to the cartridge unit, the cartridge unit and the auxiliary unit form a functional component of the data processing system.
2. The cartridge unit of claim 1, wherein the auxiliary grip is mounted to the auxiliary housing with a hinge.
3. The cartridge unit of claim 2, the auxiliary housing comprising a lip portion, wherein when the auxiliary unit connects to the first connector and the auxiliary grip pivots about the hinge, the lip portion contacts a portion of the cartridge unit, thereby the contact point between the lip and cartridge portion becomes a fulcrum to assist the auxiliary unit disengaging from the first connector.

4. The cartridge unit of claim 1, wherein the data processing system is a scanner for downloading data from a vehicle computer, and the auxiliary memory device is an EPROM for storing communication protocols corresponding to the vehicle computer.
5. The cartridge unit of claim 4, wherein data stored in the EPROM is accessible by the controller.
6. An auxiliary unit for detachably connecting to a cartridge unit, comprising:
- an auxiliary circuit board;
  - an auxiliary memory device disposed on the circuit board;
  - an auxiliary connector, coupled to the auxiliary circuit board, for detachably connecting to a connector of the cartridge unit;
  - an auxiliary housing containing the auxiliary circuit board and having a guide for guiding the auxiliary connector to connect to the connector of the cartridge unit via a predetermined path; and
  - an auxiliary grip pivotally mounted to the auxiliary housing;
- wherein the auxiliary unit and the cartridge unit together form a functional component of a data processing system.
7. the auxiliary unit of claim 6, wherein the auxiliary grip is mounted to the auxiliary housing with a hinge.
8. The auxiliary unit of claim 7, the auxiliary housing comprising a lip portion, wherein when the auxiliary unit connects to the cartridge unit and the auxiliary grip pivots about the hinge, the lip portion contacts a portion of the cartridge unit, thereby the contact point between the lip and cartridge portion becomes a fulcrum to assist the auxiliary unit disengaging from the cartridge unit.
9. The auxiliary unit of claim 6, wherein the data processing system is a scanner for downloading data from a vehicle computer.

10. A cartridge unit for connecting to a data processing system and receiving an auxiliary unit, comprising:

- a circuit board having a controller;
- a housing containing the circuit board;
- a first connector coupled to the circuit board for connecting to the data processing system;
- a second connector coupled to the circuit board for receiving the auxiliary unit;
- a pathway disposed in the housing for receiving a matching guide of the auxiliary unit; and
- a grip pivotally mounted to the housing;

wherein the cartridge unit and the auxiliary unit, when connected, form a functional component of the data processing system.

11. The cartridge unit of claim 10, wherein the grip is mounted to the housing with a hinge.

12. The cartridge unit of claim 11, the housing comprising a lip portion, wherein when the cartridge unit connects to the data processing system and the grip pivots about the hinge, the lip portion contacts a portion of the data processing system, thereby the contact point between the lip and data processing system becomes a fulcrum to assist the cartridge unit disengaging from the data processing system.

13. The cartridge unit of claim 10, wherein the data processing system is a scanner for downloading data from a vehicle computer disposed on a vehicle and processing the data to determine the operation status of the vehicle.

14. The cartridge unit of claim 10, wherein the cartridge unit is configured to receive a variety of auxiliary units to form a variety of functional components of the data processing system.

15. The cartridge unit of claim 14, wherein the cartridge unit contains circuitry common to each functional component.

16. A vehicle diagnostic system for downloading data from a vehicle computer disposed on a vehicle, comprising:

a connector for connecting to a data output port of the vehicle computer;

a processor for processing data;

a memory device for storing data;

an interface circuit coupled to the connector for interfacing with the vehicle computer;

a bus coupled to the processor, the memory device, and the interface circuit; and

an expansion connector coupled to the bus for detachably receiving a cartridge unit;

wherein the cartridge unit comprises:

a circuit board having a controller;

a housing containing the circuit board;

a first connector coupled to the circuit board for connecting to the expansion connector;

a second connector coupled to the circuit board for receiving an auxiliary unit having a memory device; and

a grip pivotally mounted to the housing;

wherein the cartridge unit and the auxiliary unit, when connected, form a functional component of the vehicle diagnostic system.

17. The system of claim 16, wherein the grip is mounted to housing with a hinge.

18. The system of claim 16, the grip comprising a lip portion, wherein when the cartridge unit connects to the expansion connector and the grip pivots about the hinge, the lip portion contacts a portion of the vehicle diagnostic system, thereby the contact point between the lip and the vehicle diagnostic system becomes a fulcrum to assist the cartridge unit disengaging from the vehicle diagnostic system.

19. The system of claim 16, wherein the auxiliary unit comprises:

- an auxiliary circuit board;
- an auxiliary memory device disposed on the circuit board;
- an auxiliary connector, coupled to the auxiliary circuit board, for detachably connecting to the second connector of the cartridge unit;
- an auxiliary housing containing the auxiliary circuit board and having a guide for guiding the auxiliary connector to connect to the second connector via a predetermined path; and
- an auxiliary grip pivotally mounted to the auxiliary housing;

wherein when the auxiliary unit connects to the cartridge unit, the auxiliary connector and the second connector of the cartridge unit form signal flowing paths.